

CLAIMS

1. An antenna apparatus comprising:

a fixed-side transmission line having an electric field
5 distribution or a magnetic field distribution axially
symmetrical in a propagating direction;

a rotation-side transmission line, having an axially
symmetrical electric field distribution or magnetic field
distribution, arranged coaxially with the fixed-side
10 transmission line so as to be rotatable about the axis of
the fixed-side transmission line;

a transmission-line side choke disposed between the
fixed-side transmission line and the rotation-side
transmission line for causing short-circuit between both the
15 lines at a high frequency; and

a primary radiator disposed in the rotation-side
transmission line in a state rotatable together with the
rotation-side transmission line for radiating high-frequency
signals that have passed through the rotation-side
20 transmission line in a direction different from that of the
rotation axis of the rotation-side transmission line.

2. The apparatus according to Claim 1, wherein a
plurality of the primary radiators are provided in the
rotation-side transmission line, and the plurality of the
25 primary radiators are arranged to direct themselves in

directions different from each other.

3. The apparatus according to Claim 2, further comprising a casing disposed around the plurality of the primary radiators for surrounding the primary radiators, wherein the casing is provided with a radiator opening formed thereon, any one of the plurality of rotating primary radiators being sequentially connected to the radiator opening.

4. The apparatus according to Claim 3, further comprising a radiator-side choke disposed between the plurality of primary radiators and the casing, wherein when one of the primary radiators is connected to the radiator opening, the residual primary radiators and the casing are shorted therebetween by the radiator-side choke at high frequency.

5. An antenna apparatus comprising:
a fixed-side transmission line having an electric field distribution or a magnetic field distribution axially symmetrical in a propagating direction;

a rotation-side transmission line, having an axially symmetrical electric field distribution or magnetic field distribution, arranged coaxially with the fixed-side transmission line so as to be rotatable about the axis of the fixed-side transmission line;

a transmission-line side choke disposed between the fixed-side transmission line and the rotation-side transmission line for causing short-circuit between both the

lines at a high frequency; and

a primary radiator disposed in the rotation-side transmission line in a state rotatable together with the rotation-side transmission line for radiating high-frequency signals that have passed through the rotation-side transmission line in parallel with the rotation axis of the rotation-side transmission line not coaxially with the rotation axis.

6. The apparatus according to any one of Claims 1 to 5, further comprising a secondary radiator arranged on the line of the radiating direction of the primary radiator, the secondary radiator changing an outgoing radiation direction in accordance with an incident position of high-frequency signals.

7. The apparatus according to any one of Claims 1 to 5, wherein the respective fixed-side transmission line and the rotation-side transmission line are made of a circular waveguide having a propagation mode in a TM01 mode as the magnetic field distribution axially symmetrical about the propagating direction.

8. The apparatus according to Claim 6, wherein the respective fixed-side transmission line and the rotation-side transmission line are made of a circular waveguide having a propagation mode in a TM01 mode as the magnetic field distribution axially symmetrical about the propagating

direction.

9. A transmitter/receiver using the antenna apparatus according to any one of Claims 1 to 5.

10. A transmitter/receiver using the antenna apparatus
5 according to Claim 6.

11. A transmitter/receiver using the antenna apparatus according to Claim 7.

12. A transmitter/receiver using the antenna apparatus according to Claim 8.